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AN EXAMINATION OF THE PERCEPTIONS HELD TOWARDS
OLDER WORKERS A COMPARISON OF INFORMATION
TECHNOLOGY AND NON INFORMATION
TECHNOLOGY COMPANIES

A Thesis
Presented to the
Faculty of
California State University,
San Bernardino

In Partial Fulfillment
of the Requirements for the Degree
Master of Science
in
Psychology:
Industrial/Organizational

by
Robin Liane Tuck

June 2003

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ABSTRACT

An examination of the perceptions held towards older workers were examined across industries. The perceptions of Human Resource personnel and hiring managers recruiting for Information Technologists were compared to the perceptions of HR personnel and hiring managers recruiting for various other positions. Hassell and Perrewé's (1995) Beliefs about Older Workers scale was used to assess HR personnel's (and managers) perceptions of the older worker. No significant differences were found in the overall general stereotypes towards older workers. Additionally, no significant differences were found for stereotype sub categories which included: Computer training being less effective for older workers, the average of the general perceptions on training older workers, older workers put in less effort or are less interested in excelling than their younger counterparts, companies are unfair towards older workers, illness/absenteeism, and the dependability of older workers. Results indicated that the average age of people holding IT positions tended to be lower than the average age of people holding all other types of positions. Findings are incongruent with the popular press, which

indicates a bias against older workers in the IT marketplace.

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I would like to let Dr. Gilbert know how grateful I am for all of her help.

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CHAPTER ONE

AN EXAMINATION OF THE
PERCEPTIONS HELD TOWARD OLDER
WORKERS A COMPARISON OF
INFORMATION TECHNOLOGY AND NON
INFORMATION TECHNOLOGY COMPANIES

The aging of the baby boomers presents a unique situation for American organizations. Organizations have to successfully integrate older workers into today's workforce. There are three valid reasons why older workers can and need to stay in the workforce longer. First, laws such as the Age Discrimination in Employment Act are legally permitting older people to stay in the work force longer. Second, as technology advances, jobs are becoming less physically demanding and more mentally demanding, also allowing older workers to stay in the workforce longer. Third, organizations are going to need older workers, because the baby boom is followed by a period of low birth rates, which means major labor shortages. Demographics show that there are 76 million baby boomers and only 56 million baby busters to fill their slots after the baby boomers leave the work force (Solomon, 1995).

Despite the current economic downturn in this industry, Information Technology (IT) has made up to 46% of the US gross national product this decade and it is going to be one of the main industries that are going to be affected by labor shortages. During this decade, Science and Engineering occupations are anticipated to increase three times faster than the rate for all other occupations. Among these occupations the field of IT is anticipated to have the highest rate of increase at 86% [adding approximately 1.9 million new jobs] (Science and Engineering workforce - Indicators 2002- projected demand for S&E workers). In order to be successful, companies are going to have to employ older workers in order to fill many entry-level positions. However, often times IT companies seek individuals who are willing to work long hours and have a lot of energy and commitment. Stereotypically, managers expect these types of traits in younger workers. During the height of the technological revolution, companies across the country were doubling their recruiting efforts in an attempt to find qualified employees, while some older IT workers were unable to find jobs (DeVoe, 1998). Although training for older workers is greatly needed, organizations are hesitant to invest in the training and retraining of older workers because of

management's perceptions that older workers produce higher rates of turnover (Forteza & Prieto, 1994; McNaught & Barth, 1992) and that training will not be effective for the older worker (McNaught & Barth, 1992). Any negative perceptions that managers and human resource specialists have towards the older worker are damaging to both the older worker as well as to the company. These types of negative perceptions, whether they are held consciously or subconsciously, are based on a form of discrimination, or negative stereotypes held towards a certain group (Huffman, Vernoy, & Vernoy, 1994).

Before older workers are to re-enter and be successful in their careers, several myths must be dispelled. Some of the biggest barriers to the employment of the older worker is the belief that they are less productive than their younger counterparts. Based upon reports from the American Association of Retired Persons (AARP), workers between the ages of 50-60 tend to stay at the same job for at least 15 years and their attendance is as good or better than other groups. In addition, studies on the retention of older workers indicate that older workers are the most stable in their careers and that they are less likely to leave the organization (Forteza & Prieto, 1994). McNaught and Barth (1989) found that 87

percent of the older workers who completed computer training stayed with the organization. In contrast, only 30 percent of the younger employees who completed computer training stayed with the organization (results were based upon one year of time). Despite studies such as these, ageism still exists in our society. Possibly the reason why HR professionals are hesitant to hire and train older workers is because of the negative stereotypes that they hold towards them.

Hamilton and Troiler (1986) define a stereotype as a cognitive structure containing the perceiver's knowledge, beliefs, and expectations about some human social group. In order to establish the existence of the stereotype, one must first understand how they form and why they form. There are several lines of reasoning as to why people categorize others into groups. The first line of reasoning focuses on the cognitive aspect of categorization. According to Falkenberg (1990) the social cognitive model of stereotyping holds that stereotypes are formed and held to reduce the amount of information that has to be processed by a human mind, to predict behavior, and to define the membership of a certain group. In other words, one does what is the easiest (less work) for him or her. For example, when a human resource specialist is faced

with the dilemma of choosing someone for a promotion, membership into a work group, a candidate for training, or a job applicant, and the HR specialist does not have a lot of time, it may be easier for him or her (consciously or subconsciously) to rely on stereotypes on which to base his or her decision. For instance, they might automatically decide to choose the younger person because he or she perceives them as hardworking, adaptable, quick to learn, eager for a challenge, easy to train, and cooperative. In contrast, the older workers might be rejected because they are seen as being rigid, a poor investment for training or promotions, not likely to cooperate, a slow learner, or unfriendly (grouchy).

A second perspective of why people categorize others into groups has to do with a look at the self-beneficial motives behind the categorization. According to social identity theory, in-group/out-group categorization perpetuates the perceivers desire to hold themselves in high regard (Tajfel & Turner, 1979). Once out-group categorization occurs, a number of different processes can be seen. For example, individual members of the in-group are perceived as being more similar to each other than a mere summation of individuals. In contrast, individual members from different groups are seen as more different

from one another than a comparison between randomly generated individuals might suggest (Wilder, 1978a, 1978b). The present study focuses on an exploration of the perceptions held by HR Personnel about older workers, across various industries. Specifically, the present study compares the perceptions of managers and HR Personnel hiring for IT positions to the perceptions of managers and HR personnel hiring for various other positions. This study was conducted in order to establish the existence of stereotypes in the field of Information Technology.

A possible reason why older workers may experience more negative stereotypes in the IT industry versus any other industry is because of the young age of the Internet entrepreneurs. Typically, Internet companies are being started by people under 40 years of age. These young people appoint themselves as the CEO of the company and seek employees who are in the same cohort as themselves. According to Fortune magazine, some of America's richest men are under the age of 40 (Hu, 1999).

The top 5 are Michael Dell of Dell computers at \$21.49 billion (37 years old), Jeff Bezos of Amazon.com at \$5.74 billion (38 years old), Ted Waitt of Gateway at \$5.44 billion (39 years old), Pierre Omidyar of eBay at \$3.69 billion (35 years old), and David Filo of Yahoo at

\$3.12 billion (36 years old). Although it has been a relatively short time since the beginning of the technological revolution, stereotypes of the ideal Information Technologist have already emerged. For example, when one thinks of a computer genius one might conjure up an image of Bill Gates at the beginning of his career. Because young people are revolutionizing the field of Information Technology, older workers are experiencing difficulties in entering this industry. The dispelling of these negative stereotypes is essential, due to the recent development of Computer Science; older workers never had the opportunity to excel in this field.

Falkenberg (1990) noted that stereotypes begin by the classification of people into groups based upon certain traits that have been observed during certain activities. In other words, the group as a whole is seen as having the same personality characteristics and the same traits. Researchers use many other theories to explain the formation of stereotypes. First, according to the theory of illusory correlation, people have a tendency to attend to infrequent or distinctive stimulus events, which results in the false perception of a relationship between distinct stimuli. This phenomenon can best be demonstrated by an experiment designed by Chapman (1967). In this

study, participants were instructed to read a series of passages. Each passage described a different person belonging to one of two groups (group A & group B). The passages described either an undesirable or a desirable behavior. Group A is twice as large as group B and desirable behaviors occur more frequently than undesirable behaviors in both groups. The number of desirable and undesirable behaviors presented to the participants for both groups is identical. Interestingly, researchers consistently find that participants rate the larger group more favorably than the smaller group. The conclusion for this finding is based upon an observer's tendency to attend to distinctive stimuli. In this experiment, the infrequency of the undesirable behaviors of the smaller group is distinctive.

Classical conditioning in stereotype formation occurs when an association is created between a particular emotion and a group of people (Macrae, Stangor, & Hewstone, 1996). For example, when a participant is asked to describe the emotions that he or she feels toward an out-group, the typical responses are irritation and anxiety. Eventually, after several uncomfortable encounters between the two groups, the feelings of anxiety and irritation become associated with the group itself. In

factor. In contrast, if an out-group member performs a good deed it is likely to be viewed as an exception to the person's normal behavior (a non-dispositional cause). On the other hand, external attributions are made for negative behaviors performed by in-group members and internal attributions are made for the positive behavior of in-group members. This theory, called the ultimate attribution error, construes that these views lead to a positive view of in-group members and a negative view of out-group members even if the same exact behaviors were performed by a member from each group.

The next theory of stereotype formation has to do with the process of conformity (Macrae et al., 1996). Normative social practices seem to play a key role in stereotype formation. In this perspective, stereotypes are as easily acquired as membership into a social group (acquiring social norms). Furthermore, individuals vary on their adherence to stereotypes based upon their conformity to social norms. Those that greatly conform to social norms typically demonstrate a higher level of prejudice. Lastly, adherence to negative stereotypes increases when the pressure to conform is great. In these circumstances negative stereotypes towards out-group members are held in high regard.

Stereotypes are often a result of the roles that society has placed upon certain groups of people. For example, because younger workers started the technological revolution, they are seen as being more technologically advanced or gifted than their older counterparts. Stereotypes like these, rather than being a fact of nature, are a result of the role-determined behaviors that society has created. In other words, because older workers have not yet entered the field of Information Technology, society has not created an association between the computer and the older worker.

The theory of stereotypes as justification for the status quo keeps this bias towards older workers in tact (Macrae et al., 1996). The distinction of people into various roles fosters the hierarchical ordering of groups. For example, in today's technological age people who are computer literate are seen as intelligent and successful. In contrast those who are not skilled at computers are looked down upon as inferior. The stereotypes that occur because of the role determined (roles determined by society) behaviors becomes the justification for the stereotypes.

So, logically the only way to dispel the myths of older workers is to get people to notice them as

individuals (by displaying distinctive behaviors) and not members of a stigmatized group. Thus HR personnel or managers from traditional industries, such as the health care industry or the manufacturing industry, might be less likely to hold negative stereotypes about older workers, if they become invested in them. Because the technology industry has not yet been exposed to the older worker, any negative stereotypes that are held are unlikely to be dispelled.

In order for negative stereotypes to be dispelled, there are three processes that need to occur (Falkenberg, 1990). The first process occurs when the member of a stigmatized group deviates from the prescribed stereotype. In order for the perception to change, or be revised the deviant behavior must continue as well as be observed in other minority group individuals. The second process deals with the pattern of interactions that takes place between majority and minority group members. For instance, as the number of minority group members increases the majority group member begins to see great differences between the minority group members. In addition, the actions of the minority group member become so distinct that the majority group member cannot pass it off as being typical behavior. Also, as the interactions between minority and majority

group members becomes more frequent, majority group members begin to see minorities as individuals (versus members of a group), and the skills and abilities of the minority group member are recognized as being characteristic of the person (versus the group). The third process, involves spending more time with the stigmatized group, and classifying them by more accurate measures of their true ability. As a majority group member spends more time with a minority group member, they start to classify them in smaller categories, which leads to a more accurate perception. Also, the majority group member sees how society (situational factors) affects the stigmatized group. Falkenberg applies these processes to gender stereotypes within organizations; however, these processes can easily be applied to older workers as well. For example, managers can aid in the revision of stereotypes by ensuring the distribution of vital information to all individuals in the organization. Vital information obtained by one group and not the other increases power and status differentiation. The author notes that accurate information provided to all individuals in the organization reduces the use of stereotypes to classify individuals. For example, if an older worker and a younger worker are up for the same job, and the older worker

receives the job, people might think that the older worker got the job because he or she has more seniority. However, if everyone were able to see the qualifications of the two individuals one would not have to rely on false perceptions to form their opinions. In contrast, if the younger worker got the job, other employees would not have to rely on the perception that he or she received the job because of education and relevant experience. Also, the distribution of information among individuals reduces the propensity of employees to hold negative stereotypes about other employees. In addition, Falkenberg suggests that the accomplishments of all individuals be made public (in some type of written form). If this is done, the achievements of older workers, for example, will not go unnoticed. Lastly, Falkenberg suggest that written summaries be provided to group members when someone new enters into the group. This is done to reduce ambiguity and to prevent the usage of stereotypes when someone new (an older worker) enters the group for the first time.

Although research on stereotypes has suggested that there is not a simple prescription for revision (Wilder, Simon, & Faith, 1996), Wilder et al. note that successful stereotype revision has occurred only after multiple positive encounters with multiple out-group members.

Wilder et al. (1996) developed their hypothesis based upon the premise that an out-group member's behavior is compared to a stereotypical notion that one has of that out-group. If the behavior of the individual matches the stereotypical behavior (or notion of that behavior) of the group, the stereotype is maintained or enhanced. On the contrary, if the behavior of the individual does not match the stereotypical behavior of the group, an attribution concerning behavior is made. The cause of a behavior can either be attributed to internal (skill or ability), or external (luck or task difficulty) reasons. Wilder et al. conducted three experiments in order to demonstrate that a single (counter stereotypical) behavior could effectively change the stereotypes held toward a certain group. In the first two experiments the researchers created stereotypes about two fictitious groups. In the third experiment the researchers used social categories with which participants already had experience, in order to control for the artificiality of the first two experiments. In all three experiments both positive and negative stereotypes were used. In other words, counter stereotypic behavior was either portrayed in a positive or a negative light. In all three experiments, participants read descriptions about a real or a fictitious group (a social category was used for

experiment three) in order to create stereotypes about the out-group. Then participants were exposed to a target individual who behaved in either a stereotypical manner or a non stereotypical manner, whose actions could either be attributed to an unstable internal (non typical), a stable internal (typical), or an external (environmental). Afterwards, participants evaluated out-group members on out-group stereotypes. The results of the study indicated that under two conditions a single (counter stereotypical) behavior could effectively change a stereotype that was held about an out-group. First, the (counter stereotypical) behavior must be attributed to an internal/stable (typical of him or her). Second, the person behaving in a counter stereotypical manner must be seen as an otherwise typical member of the out-group.

Kunda and Oleson (1997) conducted a study in which they manipulated the actual behavior to which the participants were exposed. They argue that individuals who deviate moderately from a group's stereotype will be more successful at changing the group's stereotype than someone who deviates extremely from the stereotyped group. In addition, people who hold more moderate stereotypes toward a particular group were expected to be more influenced to change their stereotype than a person who holds more

extreme stereotypes towards a particular group. Kunda and Oleson (1997) exposed participants to deviant behavior and manipulated the extent to which the deviant behavior confirmed or disconfirmed the actions of the stereotyped group. The researchers found that individuals fail to change the stereotypes that they hold when encountered by someone that extremely violates the stereotype. Conversely, this individual is likely to be discounted as an "exception."

In order to dispel the negative stereotypes that exist in organizations it is important to understand manager's perceptions of older workers. Gibson et al. (1991) conducted a study in order to investigate employer's perceptions of the characteristics of older and younger workers and to identify the factors that are responsible for employers' perceptions. Questionnaires were sent to owners or personnel managers from all types of companies. The variables measured were individual initiative, stability, experience, and potential for development. Individual initiative consisted of such measures as competitiveness aggressive spirit, ability to lead, and communication skills. Stability consisted of such measures as loyalty to the company, commitment to quality, and punctuality. Experience consisted of such

measures as experienced physical agility, and practical knowledge. Lastly, potential for development consisted of comfortable with technology, flexible doing different tasks, and learns new skills quickly. The results indicated that older workers were rated more favorably than younger workers in individual initiative, stability, and experience. Older workers were seen as reliable, loyal, and as providing experience and leadership. Conversely, younger workers were rated more favorably than older workers for potential for development. In addition, both younger and older raters perceived younger workers as having a greater potential for development than older workers, but older workers were more positive to older workers and younger workers were more positive towards younger workers (in-group bias). In addition, Gibson et al. (1991) found that certain types of organizations might be more susceptible to negative attitudes toward older workers than others. For example, the researchers found that white-collar employers' value potential for development in their employees more than blue-collar employees.

Managers, however do not only recognize the negative aspects of hiring older workers, they also acknowledge the positive. According to a survey of more than 400 human

resource executives, managers outscored average-aged workers on such things as turnover, absenteeism and job skills (as cited in Solomon, 1995). Turnover and absenteeism are concrete, easily measurable constructs, however the term job skills is very nebulous and subject to debate. Job skills are a very important aspect in an employee, however one can argue that the ability to learn, change, and adapt is an even more important attribute (the ability to be trained and retrained). Based upon a report from the AARP one of the common problems in the middle of one's career that lower productivity is career obsolescence. Combating obsolescence requires retraining. In order for management to invest in the retraining of older workers, they must believe that the investment is worth it.

Studies on the trainability of older workers indicate that older workers fare just as well as younger workers when training methods are adjusted to fit their needs. For example, McNaught and Barth found that initially training sessions for older trainees lasted for three weeks, whereas younger workers could be trained in only two weeks (as cited in McNaught & Barth, 1992). However, when the older trainees overcame their fear (and trainers perfected their training method to fit the needs of the older

trainee) older workers learned as quickly as their younger counterparts.

As the baby boomers age, American organizations will have to be especially considerate to the needs of older workers. This is not an easy task for human resources due to the vast amounts of negative age stereotypes that plague our society (both consciously as well as unconsciously). A stereotype that is especially prevalent in the minds of managers is that older workers do not perform as well as their younger counterparts in jobs that require adaptability, creativity, and high levels of motivation (Rosen & Jerdee, 1976). This discovery was extrapolated by instructing participants to imagine that they would meet two people for the first time and that the only prior information they would have would be that one man would be 60-years old and the other would be 30-years old. Next, Rosen and Jerdee asked participants to indicate the degree to which each characteristic described the average 60-year old male and the average 30-year old male from a list of 65 characteristics. In other words, Rosen and Jerdee made a direct comparison of the differences seen between older and younger workers. The 60-year old man was rated consistently lower on performance capacity and potential for development as compared to the 30-year

old man. Performance capacity consisted of constructs such as productivity, efficiency, motivations, and the capacity to work under pressure. Potential for development consisted of constructs like ambition, eagerness, adaptability, versatility, and learning capability. The construct potential for development is of great importance for analyzing manager's perceptions of older workers ability to learn and be trained. If a manager holds the perception that older workers are not ambitious, eager, versatile, adaptable, or able to learn, the manager will be hesitant to invest in training the older worker in such things as modern technology.

According to Rosen and Jerdee (1976) one can exert their prejudices and stereotypes consciously or subconsciously. Consciously in terms of one holding conscious stereotypes against a certain group and subconsciously in terms of one making important decisions based upon unknown stereotypes (unrealized) that one holds about a certain group. In addition, Rosen and Jerdee (1976) suggested (in a subsequent study) that managers may base personnel decisions, such as hiring, firing, promotions, and selection for training on an unconscious standard (employee age).

Research has shown that there are only slight differences in the performance of older workers versus younger workers, often times depending upon which study that you look at. For example Waldman and Avolio (1986) conducted a meta-analysis of age differences in job performance. The researchers classified job performance into three categories. Supervisory ratings and peer ratings were a basic overall score from supervisors and peers. Individual productivity comprised a piece rate type of system (the number of units produced). Differences were found based upon the type of measurement that the researchers used. For example, measures of objective productivity indicated that performance increases with age. Supervisory ratings on the other hand, showed small decreases in performance as age increased. The researchers felt that individual productivity was a more fair measure than supervisory and peer ratings because these measures could be affected by bias. However, human resource personnel and supervisory ratings are more important than the other two measures, because they are the ones who make the hiring decisions in the company.

The current study seeks to determine whether there is a difference in managers' or HR personnel's perception of the older worker across the IT industry and various other

industries. The popular press indicates that IT companies, which are often started by people under the age of 40 are hesitant to invest in the hiring of older workers in an IT capacity. This study examines whether these differences really do exist and if they can be predicted by age related stereotypes. Typically, younger workers start Internet companies and these younger workers are likely to hire people that are similar to them. Technology geared companies are expected to hold negative stereotypes towards older workers as compared to various other companies, due to the history of the field.

Hypothesis

1. The average age of people holding IT positions will be lower than the average age of people holding all other types of positions.
2. HR Personnel or hiring managers are more likely to hold more negative stereotypes towards older workers when recruiting for Information Technologists than when recruiting for various other types of positions.
3. The average age of people holding IT and non-IT positions can be predicted by age related stereotypes.

CHAPTER TWO

METHODOLOGY

Participants

Human resource personnel throughout Southern California were contacted via email, telephone, or in person, in order to find out which individuals (managers or Human Resource personnel) were responsible for interviewing and hiring for the various departments (IT versus non IT). For example, if the manager or supervisor of the IT department was responsible for interviewing and hiring Information Technologists, then they were asked to fill out the survey. Conversely, if Human Resource personnel were responsible for interviewing and hiring for the IT department, then he or she was asked to fill out the survey. The same process was used for non-IT departments. Job positions dealing with Information Technology consist mainly of computer operators, webmasters, programmers, program analysts, applications systems analysts, database analysts, information systems managers, database managers, and software engineers. Various other job positions included traditional job positions, such as managers, executives, secretaries,

accountants, controllers, vice presidents, market analysts, sales executives, etc.

In an effort to control participation, surveys were only distributed to those individuals who were responsible for hiring either Information Technologists or the various other job positions. Furthermore, participants were asked what types of positions he or she is accustomed to hiring. Three surveys were thrown out because participants did not have any hiring authority. A total of 139 participants were included in the study. Cohen's (1992) power analysis suggested 128 participants.

All participation was voluntary. Anonymity was assured for all participants. Participants were treated in accordance with the ethical standards set forth by the American Psychological Association (1992).

Measures

Perceptions about older workers were assessed using Hassell and Perrewé's (1995) shortened version of the Attitude Toward the Employment of Older People Questionnaire, retitled "Beliefs about Older Workers" (see Appendix A). Responses range from 1 (strongly agree) to 5 (strongly disagree). Scores range from 27 to 135. Low scores indicate an overall negative perception about older

workers. High scores indicate positive beliefs about older workers. Hassell and Perrewé (1995) conducted a pilot study on their revised questionnaire (Beliefs about Older Workers), and found a test retest reliability of .67 (overall). An alpha level of .01 was used for all statistical tests in the current project.

The Beliefs About Older Workers scale was chosen because the questions were devised from studies of age discrimination. The internal consistency coefficient for the current project was .84. In addition, the scale was divided into subscales to capture the individual aspects of stereotypes. These include stereotypes about dependability (internal consistency = .73), stereotypes about illnesses (internal consistency = .71), feelings that companies are unfair towards older workers (only one item, no reliability to report), older workers being less effective (internal consistency = .63), difficulty of training older workers (internal consistency = .70), difficulty of training computer skills to older workers (internal consistency = .70) [see Appendix B for subcategories].

Outcome Variable

The average age of the employees in the company, and the average age of the employees in the IT department (see Appendix C). Non-IT employees in any given company included, accountants, clerical, healthcare administrators, chemists, scientists, retail, customer service, and front desk. Examples of employees in the IT department included computer engineers, systems engineers, hardware and software engineers, PC and network support.

Demographic Variables

Demographics were collected for age (of participant), gender, education, job title or position.

CHAPTER THREE

RESULTS

Analyses were completed using SPSS and Minitab. Prior to hypothesis testing data were screened for violations of assumptions. No patterns were found for missing data and less than 5% of data was missing. No significant outliers were found. A histogram indicated that the data set came from a normal distribution. All means and standard deviations of each of the scales were within a normal range relative to the scale used (see Table 1). An alpha level of .01 was used for all statistical tests.

Table 1. Means and Standard Deviations for each of the Scales Used

	Mean	Standard Deviation
Paired T Test		
Average Employee Age	36.163	6.629
Average IT Age	32.030	7.126
Two Sample T Test		
General Stereotypes	2.413	0.430
Dependable	2.356	0.597
Occupational Illness	3.074	0.809
Unfair	3.11	1.09
Less Effective	2.122	0.673
Overall Training	2.421	0.612
Computer Training	2.408	0.709

Hypothesis 1

Because the sample contained HR personnel and hiring authorities that recruited for both Information Technologists and non Information Technologists a paired samples t-test was performed in order to determine if the average age of people holding IT positions was lower than the average age of people in the company. A significant difference was found, $t = 6.11$, $p < 0.00$. The mean for the average age of people holding IT positions was 32.03. The mean for the average age of people in the company was 36.16, thus supporting hypothesis 1. In addition, an independent t-test comparing the average employee age reported by people hiring for only IT positions versus people hiring for only non IT positions. The difference was significant ($t = 2.40$, $p > .02$). The mean for IT companies was 34.8 and the mean for non-IT companies was 38. This provides additional support for hypothesis 1.

Hypothesis 2

A standard t-test was also performed in order to determine if HR personnel or hiring managers recruiting for Information Technologists are more likely to hold more negative stereotypes about older workers than HR personnel or managers hiring for various other job positions. No

significant difference was found in the overall general stereotypes towards older workers ($t = 1.08, P > 0.28$). Hypothesis 2 was not supported. Additionally, standard t-tests were also performed for each of the various sub categories in order to determine if HR personnel or hiring managers recruiting for Information Technologists are more likely to hold more negative stereotypes about older workers than HR personnel or hiring manager recruiting for various other job positions. No significant differences were found.

Hypothesis 3

A regression analysis was performed in order to determine if the difference between the average age of people holding IT and non-IT positions can be predicted by overall age related stereotypes. The difference between the average age of the Information Technologists and overall age was calculated. The results were not significant ($r \text{ squared} = .00, p > .60$). Hypothesis 3 was not supported.

To further explore the possible relationship between stereotypes and age differences a series of correlations were run between each of the sub dimensions of age related stereotypes and age differences. The relationship between

dependability of older workers and age differences was not significant ($r = .11$, $p = .22$). The relationship between age related illnesses and age differences was not significant ($r = .02$, $p = .84$). The relationship between unfairness towards older workers and age differences was not significant ($r = .10$, $p = .26$). The relationship between older workers being less effective and age differences was not significant ($r = .00$, $p = .99$). The relationship between the overall training of older workers and age differences was not significant ($r = .03$, $p = .72$). The relationship between the computer training of older workers and age differences was not significant ($r = .01$, $p = .90$).

CHAPTER FOUR

DISCUSSION

The current study examined the differences in hiring manager's perception of the older worker across the IT industry and various other industries. As hypothesized the average age of people holding IT positions was lower than the average age of people holding all other types of positions. Secondly, no significant differences were found between the beliefs of hiring managers recruiting for IT positions versus hiring managers recruiting for various other positions. Thirdly, stereotypes were broken down further to examine the different sub categories, which consisted of computer training being less effective for older workers, the average of the general perceptions on training older workers, older workers put in less effort or are less interested, companies are unfair towards older workers, illness/absenteeism, and the dependability of older workers. The average age of people holding IT versus non-IT positions was not to be predicted by age related stereotypes.

A possible explanation for the lack of support could be a result of the sample that was surveyed. Fifteen percent of hiring authorities recruited for both

Information Technologists and various other positions. Indicating that the hiring authorities had more exposure to older workers than a company that consists solely of Information Technologists. Furthermore, a correlational study with a survey did not permit an isolation of how much experience or time participants had spent with older workers. According to Wilder et al. (1996) the successful revision of stereotypes occurs after multiple positive encounters with multiple out-group members. A suggestion for future research on stereotypes towards older workers would consist of specifically seeking hiring authorities from dot com companies and comparing their perceptions of the older worker to the perceptions of hiring authorities from other more traditional companies (non-IT focused organizations).

Although it is indicated by the literature that age has a prolonged effect on the duration of unemployment (adversely affecting many older workers), it is uncertain which factors contribute to this phenomenon. For example, due to the lack of government funding in the aerospace and defense industry, these two fields are proven to have the longest periods of unemployment. Typically, older workers dominate both of these fields, hence industry rather than age accounts for the high unemployment rate among the

older individuals in these particular field (computing Research Association).

Conversely, age distributions in the IT industry are most greatly affected by the number of recipients receiving degrees in these fields. For example, because the field of computer science is such a new field 56% of the graduates are under the age of 40 (Science & engineering, indicators, 2002 - age and retirement). Therefore, what may be viewed by the media as age discrimination may actually be a result of other factors, such as industry, trainability, equity ranges, and dependability, for example.

Perhaps older workers are unable to successfully integrate into the field of IT because of the fact that there are limited number of older workers with Computer Science degrees. Thus, narrowing the selection pool for hiring authorities and HR managers to choose from. The reason why technology companies seek college students may be due to the fact that these individual have the freshest most up to date knowledge of technology. Because technology changes so rapidly America's stability and growth depends upon a well-educated American society. The days of a high school degree or college education being able to secure an American worker until retirement are

gone. In order to be competitive, it is imperative that industry experts and universities effectively communicate to harness the needs of society in the technological revolution.

With the shift of the economy from an industrial based economy to a knowledge based economy, it is imperative that every American be given a fair chance to get a higher level of education. With the job market becoming very knowledge based, only those individuals with a higher level of knowledge and education will be chosen for the best opportunities. Perhaps future research may want to address the role that education plays in the selection of an IT candidate, and the limited selection of older workers in this category.

APPENDIX A
BELIEFS ABOUT OLDER WORKERS

Directions:

This study seeks to understand appropriate environments and job types for older workers. Please fill out the following questions regarding beliefs on older workers, based on the types of positions for which you typically hire. Indicate the extent to which you agree or disagree with each of the following statements. Please check only one box for each question.

1) I think older employees have fewer accidents on the job.	Strongly Disagree	Slightly Disagree	Neutral	Slightly Agree	Strongly Agree
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2) I think computer training for the older worker will not be effective.	Strongly Disagree	Slightly Disagree	Neutral	Slightly Agree	Strongly Agree
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3) I think companies are unfair towards older employees.	Strongly Disagree	Slightly Disagree	Neutral	Slightly Agree	Strongly Agree
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4) I think older employees are harder to train.	Strongly Disagree	Slightly Disagree	Neutral	Slightly Agree	Strongly Agree
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5) I think it is more difficult to retrain older workers.	Strongly Disagree	Slightly Disagree	Neutral	Slightly Agree	Strongly Agree
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6) I think older employees are absent from work more often.	Strongly Disagree	Slightly Disagree	Neutral	Slightly Agree	Strongly Agree
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7) I think older employees have fewer serious accidents on the job.	Strongly Disagree	Slightly Disagree	Neutral	Slightly Agree	Strongly Agree
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8) I would choose to work with an older worker.	Strongly Disagree	Slightly Disagree	Neutral	Slightly Agree	Strongly Agree
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

9)	I think that occupationally related illness is less likely in older workers.	Strongly Disagree	Slightly Disagree	Neutral	Slightly Agree	Strongly Agree
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10)	I think older employees produce a higher quality of work.	Strongly Disagree	Slightly Disagree	Neutral	Slightly Agree	Strongly Agree
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11)	I think older employees are grouchier.	Strongly Disagree	Slightly Disagree	Neutral	Slightly Agree	Strongly Agree
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12)	I think older employees are less cooperative.	Strongly Disagree	Slightly Disagree	Neutral	Slightly Agree	Strongly Agree
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13)	I think older employees are more dependable.	Strongly Disagree	Slightly Disagree	Neutral	Slightly Agree	Strongly Agree
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14)	I think older workers can't keep pace with modern technology.	Strongly Disagree	Slightly Disagree	Neutral	Slightly Agree	Strongly Agree
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15)	I think older employees are more loyal.	Strongly Disagree	Slightly Disagree	Neutral	Slightly Agree	Strongly Agree
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16)	I think older workers tend to resist change.	Strongly Disagree	Slightly Disagree	Neutral	Slightly Agree	Strongly Agree
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17)	I think older workers prefer less technical jobs.	Strongly Disagree	Slightly Disagree	Neutral	Slightly Agree	Strongly Agree
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

18) I think older workers are less interested in challenging jobs.	Strongly Disagree	Slightly Disagree	Neutral	Slightly Agree	Strongly Agree
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19) I think older workers learn as easily as younger workers.	Strongly Disagree	Slightly Disagree	Neutral	Slightly Agree	Strongly Agree
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20) I think older workers take longer to learn new technologies.	Strongly Disagree	Slightly Disagree	Neutral	Slightly Agree	Strongly Agree
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21) I think older workers are better workers.	Strongly Disagree	Slightly Disagree	Neutral	Slightly Agree	Strongly Agree
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22) I think older workers do not want responsibility.	Strongly Disagree	Slightly Disagree	Neutral	Slightly Agree	Strongly Agree
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23) I think older workers are not interested in learning new skills.	Strongly Disagree	Slightly Disagree	Neutral	Slightly Agree	Strongly Agree
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24) I think it is more difficult to retrain older workers on computers.	Strongly Disagree	Slightly Disagree	Neutral	Slightly Agree	Strongly Agree
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
25) I think older workers should step aside for younger workers.	Strongly Disagree	Slightly Disagree	Neutral	Slightly Agree	Strongly Agree
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
26) I think older workers would quit if they could afford it.	Strongly Disagree	Slightly Disagree	Neutral	Slightly Agree	Strongly Agree
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Strongly Disagree	Slightly Disagree	Neutral	Slightly Agree	Strongly Agree
27) I think older workers are outgoing and friendly.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
28) I think older workers are unable to learn new computer programs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
29) I think older workers prefer less challenging jobs than when they were younger.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
30) I think older workers are a poor investment for training.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
31) I think older workers work as hard as younger workers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
32) I would choose to work with an older worker.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
33) I believe that performance declines significantly with age.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Demographics

1) Age

2) Gender Male Female

3) Highest Level of Education

4) Job Title / Position

5) Average Age of Employees At Your Company ?

6) What is the average age of the Information Technologists at your company?

7) Please describe or list the types of positions that you typically hire for.

APPENDIX B

SUBSCALES

Stereotypes about Dependability

I think older employees produce a higher quality of work.
I think older employees are more dependable
I think older employees are more loyal
I think older workers are better workers
I think older workers work as hard as younger workers
I think older employees are absent from work more often.

Stereotypes about illness

I think older employees have fewer accidents on the job.
I think older employees have fewer serious accidents on the job.
I think that occupationally related illness is less likely in older workers.

Stereotypes about unfairness

I think companies are unfair towards older employees.

Stereotypes about effectiveness

I think older workers are less interested in challenging jobs.
I think older workers would quit if they could afford it.
I think older workers prefer less challenging jobs than when they were younger
I believe that performance declines significantly with age
I think older workers do not want responsibility

General perceptions about training older workers

I think older workers tend to resist change.
I think older employees are harder to train
I think it is more difficult to retrain older workers
I think older workers learn as easily as younger workers.
I think older workers are not interested in learning new skills.
I think older workers are a poor investment for training.

Perceptions about computer training for older workers

I think computer training for the older worker will not be effective.
I think older workers prefer less technical jobs
I think older workers take longer to learn new technologies
I think it is more difficult to retrain older workers on computers
I think older workers are unable to learn new computer programs
I think older workers can't keep pace with modern technology.

APPENDIX C
DEMOGRAPHICS

DEMOGRAPHICS

- 1) Age _____
- 2) Gender Male Female
- 3) Highest level of education _____
- 4) Job title/position _____
- 5) What is the average age of the employees at your company?

- 6) What is the average age of the Information Technologists at your company? _____
- 7) Please describe or list the types of positions that you typically hire for.

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